

REMARKS

Claims 1-42, 69 and 70 are pending in the application. In the Office Action mailed June 1, 2005, claims 1-33, 69 and 70 were rejected, and claims 34-42 were withdrawn from consideration as drawn to a non-elected invention. With this response, claims 1, 8, 21, 22, 24, 28, 29 and 32 have been amended. In particular, claims 21, 22, 24 and 32 have been amended to correct dependencies. Claims 1, 8, 28 and 29 have been amended to clarify what Applicants regard as the invention. Support for these amendments may be found throughout the specification, for example in FIG. 1, FIGS. 5A-C, and on p. 6, lines 19-31. No new matter is added.

Consideration of the following remarks is respectfully requested.

CLAIMS WITHDRAWN FROM CONSIDERATION AS DRAWN TO NON-ELECTED INVENTION SHOULD BE CONSIDERED

Claims 34-42 have been withdrawn from further consideration as being drawn to a non-elected invention. Applicants thank the Examiner for acknowledging the timely traversal in Applicant's reply of March 4, 2005, but continue to disagree that examination of claims 34-42 would pose an undue burden on the examiner. Applicants respectfully request reconsideration of the withdrawal of claims 34-42.

THE OBJECTION TO CLAIM 5 SHOULD BE WITHDRAWN

Claim 5 was objected to for an informality. In particular the Examiner noted that line 1 of claim 5 should recite --further-- before "comprising". Applicants respectfully disagree. The "plurality of microarray supports" of claim 5 is further limiting of the at least one microarray support of claim 1, and do not require the word "further".

THE REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH, SHOULD BE WITHDRAWN

Claims 1-33, 69 and 70 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner contends that

independent claim 1 is unclear as to how the cavity can include a microarray support. With this response, claim 1 is amended as suggested by the Examiner to recite that the microarray support is contained within the cavity.

The Examiner also noted a lack of antecedent basis for "the microarray" in claim 29. Claim 29 has been amended to insert the word --slide-- after "the microarray".

Accordingly, Applicants respectfully submit that claims 1 and 29, as amended are clear and definite, and the rejection of claim 1 and dependent claims 2-33, 69 and 70 under 35 U.S.C. § 112, second paragraph, should be withdrawn.

THE REJECTIONS UNDER 35 U.S.C. § 102
SHOULD BE WITHDRAWN

Claims 1-4 were rejected under 35 U.S.C. § 102(e) as being anticipated by Bjornson et al., U.S. Patent No. 6,803,019 ("Bjornson"). Claims 1, 5-7 and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by Gabridge, U.S. Patent No. 4,435,508 ("Gabridge"). Claims 1, 5, 6, 8-11, 13-16, 23, 24, 28, 29 and 31-33 were rejected under 35 U.S.C. § 102(b) as being anticipated by Angros, U.S. Patent No. 6,534,008 ("Angros"). Claims 1, 69 and 70 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chow, U.S. Patent No. 5,955,028 ("Chow"). Applicants respectfully disagree with the Examiner for the reasons presented below.

A claim is anticipated under 35 U.S.C. § 102 only if each and every element and limitation as set forth in the claim is found, either expressly described or inherently present, in a single prior art reference. *Glaxo, Inc. v. Novopharm Ltd.*, 52. F.3d 1043, 1047 (Fed. Cir. 1995). There must be *no differences* between the claimed invention and the reference disclosure as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Fdn. v. Genentech, Inc.* 927 F. 2d. 1565, 1576 (Fed. Cir. 1991). Anticipation requires that all aspects of the claimed invention were already described in a *single* reference. *Scripps Clinic & Research Fdn. v. Genentech, Inc.* 927 F. 2d. 1565, 1576 (Fed. Cir. 1991).

The presently claimed invention is a microarray cartridge that can be used for shipping, storing, and high-throughput processing of microarrays. The cartridge comprises a body having a cavity surrounded by a mating surface. Within the cavity are a reaction chamber and at least one microarray support dimensioned to support the microarray slide within the cavity such that a surface of the microarray slide covers the reaction chamber. A cover is configured to cover the

cavity and sealingly adhere to the mating surface of the body. The microarray cartridge may include dimple features and/or ports which allow introduction of sample, reaction and wash solutions into the reaction chamber such that the solutions contact probes on the microarray slide when the microarray slide is held on the at least one support over the reaction chamber.

Claims 1-4 Are Not Anticipated by Bjornson under 35 U.S.C. § 102(e)

Bjornson teaches a continuous form microstructure array device constructed as a flexible elongate film laminate containing microstructure arrays arranged serially along the laminate. The microstructure arrays comprise wells interconnected by microfluidic channels of capillary dimensions. Electrodes communicate with each well to electrophoretically separate analytes within the microfluidic arrays. (E.g., see Bjornson at col. 24, line 29 to col. 26, line 47; FIGS. 12 and 13.)

Applicants respectfully disagree with the rejection of claims 1-4 based on Bjornson, and respectfully contend that Bjornson does not teach a “cavity (436) including a reaction chamber and at least one microarray support (444a, or alternatively 444c) dimensioned to support a microarray slide within the cavity such that the slide covers the reaction chamber”, as suggested by the Examiner. In fact, item 444a of FIG. 13 of Bjornson is an electrode and 444c is an electrode interconnect. The wells (436) of FIG. 13 of Bjornson are simply microfluidic wells containing fluid and analytes to be electrophoretically driven through channels (431) by electrical potentials delivered through electrodes 444a. Neither the electrode or the interconnect are capable of supporting a microarray slide as in claim 1 of the present invention. Moreover, Bjornson teaches no reaction chamber over which a microarray slide might be supported.

Thus, Bjornson does not anticipate independent claim 1. Since Bjornson does not anticipate claim 1, it does not anticipate dependent claims 2-4. Accordingly Applicants respectfully request withdrawal of the rejection of claims 1-4 under 35 U.S.C. § 102(e) as anticipated by Bjornson.

Claims 1, 5-7 and 30 Are Not Anticipated by Gabridge under 35 U.S.C. § 102(b)

Gabridge teaches a tissue culture vessel comprising two rigid plates held together with screws that bind a growth substrate between the plates. The top plate includes an aperture that provides access to the upper surface of the substrate, upon which tissues may be grown. Surrounding the aperture is a circular channel for positioning a petri dish cover to cover the aperture. (See, e.g., Gabridge at col. 2, lines 42 to col. 3, line 19; and FIG. 1.)

Applicants respectfully contend that Gabridge does not teach a microarray reaction cartridge having the features of claims 1, 5-7 or 30 of the present invention. For example Gabridge does not disclose a body comprising a reaction chamber and supports for holding a microarray slide that covers the reaction chamber as in claim 1 of the present invention. Applicants note that claim 1 has been amended with this response to clarify that, when a microarray slide is present, a surface of the microarray slide covers the reaction chamber on the same side of the reaction chamber as the cartridge cover. In contrast, the growth substrate of Gabridge is secured between the upper and lower plates such that the substrate forms the bottom of the culture vessel, and does not cover any reaction chamber. Moreover, the petri dish cover (item 4 of FIG. 1) of Gabridge rests in the circular channel (item 3 of FIG. 1), and does not sealingly adhere to the upper plate, as suggested by the Examiner. Thus, Gabridge does not anticipate claim 1. Since Gabridge does not anticipate claim 1, it does not anticipate dependent claims 5-7 and 30 for at least the same reasons as discussed with respect to claim 1.

Accordingly, for at least the reasons discussed above, Applicants respectfully request withdrawal of the rejection of claims 1, 5-7 and 30 under 35 U.S.C. § 102(b) as anticipated by Gabridge.

Claims 1, 5, 6, 8-11, 13-16, 23, 24, 28, 29 and 31-33 Are Not Anticipated by Angros under 35 U.S.C. § 102(b)

Angros discloses an automated in situ heat induced antigen recovery and staining apparatus for treating a plurality of microscope slides. The apparatus of Angros comprises a plurality of reaction compartments, and each reaction compartment holds a microscope slide on the bottom of the reaction compartment. Above each reaction compartment is a sliding reagent dispensing strip, each with a plurality of capsules containing reagents that may be expelled from the capsule and dropped onto the surface of the microscope slide.

Unlike claim 1 of the present invention, Angros does not teach one or more microarray supports capable of supporting a microarray slide such that a surface of the slide covers a reaction chamber. Moreover, the dispensing strip of Angros, which is identified as a cover by the Examiner, is necessarily above and on the opposite side of the reaction compartment from the microscope slide. (Angros at col. 6, lines 8-31). Such arrangement and orientation is necessary for a dispensed reagent to fall onto the surface of the microscope slide. Moreover, the reagent strip must be able to slide over the reaction compartment in order to dispense successive reagents (Angros at col. 6, lines 44-51), and therefore there is no cover sealingly adhered to a body as in

claim 1 of the present invention. Thus, Angros does not anticipate claim 1. Since Angros does not anticipate claim 1, it does not anticipate dependent claims 5, 6, 8-11, 13-16, 23, 24, 28, 29 and 31-33 for at least the same reasons as discussed with respect to claim 1.

Accordingly, for at least the reasons discussed above, Applicants respectfully request withdrawal of the rejection of claims 1, 5, 6, 8-11, 13-16, 23, 24, 28, 29 and 31-33 under 35 U.S.C. § 102(b) as anticipated by Angros.

Claims 1, 69 and 70 Are Not Anticipated by Chow under 35 U.S.C. § 102(b)

Chow discloses an analytical or preparatory system employing an adapter that interfaces between a sample substrate and an analytical base unit. The sample substrate is a microfluidic substrate or other substrate capable of receiving test specimens or starting materials for processing or providing a detectable signal, where the base unit manages sample flow, reagent flow, and other aspects of the analytical and/or preparatory techniques performed on the substrate. (Chow at col. 2, lines 59-65.) The adapter provides electrical interconnections for the substrate and the base unit, and allows a single type of base unit to interface with different substrates.

In rejecting claims 1, 69 and 70, the Examiner equates an aperture 117 in plate 115 of adapter 114 to the Applicants' cavity, and sample substrate 116 to a microarray support. Applicants respectfully contend that aperture 117 does not include a reaction chamber; rather it is a window for optical detector 134. Also, Chow discloses substrate 116 as a microfluidics substrate (see, e.g., Chow at col. 11, lines 47-66), not a microarray support as claimed by Applicants. Moreover, even if substrate 116 were a microarray support or a microarray slide, and even if aperture 117 could somehow be regarded as a reaction chamber, Applicants respectfully point out that substrate 116 does not and cannot fit within the cavity or aperture 117. Therefore, Chow does not teach a support dimensioned to support a microarray slide within a cavity such that the slide covers a reaction chamber.

Thus, Chow does not anticipate claim 1. Since Chow does not anticipate claim 1, it does not anticipate dependent claims 69 and 70 for at least the same reasons as discussed with respect to claim 1. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1, 69 and 70 under 35 U.S.C. § 102(b) as anticipated by Chow.

THE REJECTIONS UNDER 35 U.S.C. § 103
SHOULD BE WITHDRAWN

Claims 12, 17-22 and 25-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Angros. In particular, the Examiner contends that Angros discloses the invention substantially as claimed, except for particular dimensions of the device which are obvious as general conditions. Applicants respectfully disagree with the Examiner's rejections for the reasons presented below.

A finding of obviousness under 35 U.S.C. § 103(a) requires a determination that the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. *Graham v. Deere*, 383, U.S. 1 (1956). The relevant inquiry is whether the prior art suggests the invention and whether the prior art provides one of ordinary skill in the art with a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be found in the prior art. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

Angros is discussed above. Applicants claims 12, 17-22 and 25-27 depend from claim 1. The case law is clear that "[d]ependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious." *In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988)." Thus, Applicants respectfully submit that, for at least the reasons discussed above with respect to claim 1, Angros does not teach or suggest each and every limitation of claims 12, 17-22 and 25-27. For example, Angros does not teach or suggest one or more microarray supports within a cavity capable of supporting a microarray slide over a reaction chamber within the cavity as claimed by Applicants.

Accordingly, for at least the reasons discussed above, Applicants respectfully request withdrawal of the rejection of claims 12, 17-22 and 25-27 under 35 U.S.C. § 103(a) as being rendered obvious by Angros.

CONCLUSION

Applicants respectfully request entry of the foregoing amendments and remarks into the file of the above-identified application. Applicants believe that all the pending claims are in condition for allowance. Withdrawal of the Examiner's rejections and allowance of the application are respectfully requested.

It is believed that no fee is due in connection with the filing of this response. However, should the Commissioner determine otherwise, the Commissioner is authorized to charge any underpayment or credit any overpayment to Jones Day Deposit Account No. 503013, referencing Docket No. 9301-171-999 (301891-999163), for the appropriate amount.

Respectfully submitted,

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Enclosures